

MODULAR FAUCET FIXTURE

Description

Background of the Invention

Field of the Invention

5 The present invention relates to "modular" faucet fixtures and in particular to a faucet spout fixture in which a plumbing fixture mounting component is pre-attached to an existing water faucet supply plumbing fixture and a variety of different interchangeable spouts and handles and bases may be replaced easily without affecting the connections to the existing water faucet plumbing fixtures, thereby permitting the decorative portion of the plumbing fixture, the base, spout and handles, to be
10 interchangeably removed and replaced by an unskilled person with a screw driver without affecting the plumbing connections.

Description of the Prior Art

A number of types of fluid discharging fixtures such as decorative shower or
15 faucet heads, as well as faucet handles, are known in the art. They are typically used in kitchens, bathrooms, shower stalls and bathtub/shower combination units to disburse a supply of water into a series of jet streams, with the added feature of accentuating a room's motif or decor. It is often desirable to provide decorative kitchen or bathroom fixtures, such as decorative shower or faucet heads, which coordinate with the existing
20 decor of the room or can be easily adapted to the future decor of the room.

Numerous attempts have been made to create low cost, selectable and interchangeable decorative shower and faucet heads, which decoratively coordinate with the present and future surrounding decor of the room. However, most attempts have been

unsatisfactory because of a number of problems such as inconvenience, time and costs spent in replacing various parts of a decorative shower or faucet head in order to achieve a coordinated decorative look.

Prior art U.S. Patent Application #20030062087, published 4/3/2003 by Burns,
5 concerns a quick connect/disconnect faucet water conduit assembly includes at least one valve body and a spout nipple. There is a water tube extending from the valve body and a water tube extending from the spout nipple. A conduit has first and second terminations and there is a quick connect adapter attached to each of the first and second terminations. There are cooperating elements on each of the tubes and the quick-connect adapters for
10 locking the tubes to the adapters to thereby attach the valve body to the spout nipple.

Prior art U.S. Patent #6,301,727, issued 10/16/2001 to Bertrand, discloses a modular tub spout assembly for use in removably attaching a tub spout on a threadless water pipe extending outwardly from a bath wall without affecting connection of the pipe to a water supply system behind the bath wall. The device includes a tub spout insert, a
15 sleeve and a seal member. The insert has an interior passage, at least a portion of which is of a size to provide a close, but sliding, fit on the pipe. The sleeve has an internal diameter providing a close, but sliding, fit on the pipe and there is a chamber in the insert formed and adapted to closely fit about the sleeve exterior. The seal member is also positioned within the chamber in the insert. A fastener extends within the aligned
20 openings in the insert and sleeve to fix the insert on the pipe. There is a tub spout shell extending over and enclosing the insert and a fastener to attach the shell to the insert.

Prior art U.S. Patent #6,256,810, issued 7/10/2001 to Baker, shows an easy connect and disconnect faucet spout assembly, which is mountable on a deck from above the deck. The assembly is connected to a water supply line that extends through an opening in the deck. The assembly includes a spout removably connected to a mounting plate. A first and a second member, respectively, connect to non-rotatable nut member carrying a retainer member whereby, on shifting the nut member toward the underside of the deck, the retainer member will clamp the assembly to the deck.

Prior art U.S. Patent #6,360,770, issued 3/26/2002 to Buchner, provides a modular lavatory faucet spout mounting. A faucet spout fixture is provided for spout mounting and removal from above a supporting surface such as a sink deck, without disconnection of the water supply conduits beneath the sink deck. The fixture includes a faucet spout, which has a water passage and a water discharge in communication with the passage. There is a water inlet in the spout, which communicates with the passage. A water supply assembly is located beneath the supporting surface and there is a spout waterway adjustably connected to the water supply assembly, which spout waterway extends into the spout water inlet. There is a clamp member adjustably mounted on the spout waterway to be positioned against and on top of the supporting surface sink deck. A spout fastener extends through an opening in the clamp member and is held in position therein by a portion of the spout waterway. The spout fastener adjustably cooperates with a threaded bore on the spout to removably fasten the spout against and on top of the supporting surface.

Prior art U.S. Patent #3,790,966, issued 2/12/1974 to Keane, is for a quick-change faucet, which can be attached to a sink working entirely from above, except for attaching the riser pipes to the shut-off valves. The riser pipes are first attached to the hot and cold water valves before mounting the faucet on the sink, and the riser pipes are passed down
5 through holes in the sink ledge, which are big enough in diameter to pass the fittings. The bottom ends of the riser pipes are then connected to the shut-off valves. The water-mixing manifold, or cast faucet housing, has provision for passing mounting bolts downwardly through bolt-holes, and these bolts are screwed down into threaded bushings that are secured in openings in the sink ledge. The mounting bolts are turned down into
10 the bushings from above the sink, instead of reaching up under the sink into the almost inaccessible area behind the sink.

Prior art U.S. Patent #6,195,818, issued 3/6/2001 to Rodstein, indicates an apparatus that provides for the quick and easy installation and removal of Roman Tub Spouts onto a water fitting. The apparatus comprises a waterspout, a quick-connect
15 member, a trim escutcheon, a hub, a pair of deck nuts and a lock washer. The quick-connect member screws into a Tee fitting, or the like, in the plumbing system. The hub screws into the base of the spout and slidably engages the smooth end of the quick connect member. The trim escutcheon is disposed between the spout and hub to provide support to the hub and to conceal the hub while providing decorative ornamentation to
20 the apparatus. Once the spout and trim escutcheon are properly positioned on the quick connect member, a setscrew fastens the assembly in place. The deck nuts are positioned above and below the tub surface to hold the apparatus in place on the tub surface.

Prior art U.S. Patent #4,616,673, issued 10/14/1986 to Bondar, is for a replacement faucet handle kit of simple and inexpensive form, which includes a plurality of adapters each having a first end portion and a second end portion. The first end portions of the adapters are substantially identical and of non-circular, transverse cross-sectional configuration, such as hexagonal transverse cross-section, complementary to the transverse cross-sectional configuration of a recess in the underface of the replacement faucet handle, and the second end portion of each adapter has a bore of non-circular, transverse cross-sectional configuration, with the second end portion of each adapter differing from the second end portion of each remaining adapter with respect to one or more of the following characteristics, namely, the length thereof, the length of the bore therein, the transverse cross-sectional configuration of the bore therein, and the transverse cross-sectional dimensions of the bore therein, the bores in the adapters having transverse cross-sectional configurations and dimensions which are complementary, and of corresponding length, to the upper end portions of the valve stems of faucet valves of different manufacturers. Thus, a selected one of the adapters, the bore in which has a transverse cross-sectional configuration and dimensions complementary, and of corresponding length, to the upstanding end portion of a valve stem, may be non-rotatably mounted on the valve stem, with the replacement faucet handle being non-rotatably mounted on the selected adapter the length of the second end portion of which is such that the replacement faucet handle is at substantially the same pre-determined level as the former faucet handle.

Prior art U.S. Patent #6,138,296, issued 10/31/2000 to Baker, an easy connect and disconnect faucet spout assembly, which is mountable on a deck from above the deck.

The assembly is connected to a water supply line that extends through an opening in the deck. The assembly includes a spout removably connected to a mounting plate. A first

5 and a second member, respectively, connect to non-rotatable nut member carrying a retainer member whereby, on shifting the nut member toward the underside of the deck, the retainer member will clamp the assembly to the deck.

Prior art U.S. Patent #5,803,120, issued 9/8/1998 to Bertoli, indicates faucets for sanitary fixtures with interchangeable decorative elements. The faucet comprises an

10 externally unfinished hydraulic apparatus comprising at least one water delivery conduit and water regulation means. The hydraulic apparatus is at least partly covered with sheathing elements in the form of rigid shells capable of defining the external appearance of the faucet. The sheathing elements are provided with shaped elements capable of meeting corresponding parts of the hydraulic apparatus to determine the correct position
15 of the sheathing elements with respect to the hydraulic apparatus. Connecting means are provided for fastening the sheathing elements to one another and to the hydraulic apparatus.

Prior art U.S. Patent #5,797,422, issued 8/25/1998 to Tokarz, puts forth a handle construction for operation of a faucet, which minimizes assembly parts while enhancing
20 performance of the handle. The handle assembly includes a base, which is secured to the operating valve of the faucet for operational control of fluid flow through the faucet. An upper end of the base has a horizontally disposed tubular seat adapted to receive a lever

body and an axial spindle extending through the body. The spindle is threadably received within the seat to retain the lever body within the seat. The lever body is interchangeable to alter the aesthetic appearance of the faucet handle.

Prior art U.S. Patent #5,960,490, issued 10/5/1999 to Pitsch, discloses a faucet
5 fitting system that has interchangeable components useable in both single handle and dual handle faucet fixtures. The component system is designed to allow the same putty plate with breast plate, waterway spout, aerator and mounting nuts to be used with the various escutcheons, metering valves and waterways associated with the single handle and dual handle faucet fixtures. Specially constructed water valves, putty plates and escutcheon
10 constructions useable in conjunction with the system are also disclosed.

Prior art U.S. Patent #5,979,489, issued 11/9/1999 to Pitsch, illustrates a faucet fitting system that has interchangeable components useable in both single handle and dual handle faucet fixtures. The component system is designed to allow the same putty plate with breast plate, waterway spout, aerator and mounting nuts to be used with the various
15 escutcheons, metering valves and waterways associated with the single handle and dual handle faucet fixtures. Specially constructed water valves, putty plates and escutcheon constructions useable in conjunction with the system are also disclosed.

Prior art U.S. Patent #5,465,749, issued 11/14/1995 to Sauter, describes a top mounted faucet valve assembly that has a block member with a hinged arm which is
20 fitted through from the top of a supporting surface and actuated by a threaded actuating member. As the actuating member is turned in one direction, the hinged arm engages the underside of the supporting surface. To disengage the faucet, the actuating member is

turned in the opposite direction, which permits removal. Both single and dual handle faucets can be top mounted by the mounting assembly disclosed herein. An aesthetically appearing faucet results wherein the actuating mechanism is hidden.

Prior art U.S. Patent #4,762,143, issued 8/9/1988 to Botnick, describes a faucet
5 manifold that is adapted to be mounted on a countertop over openings through which access can be had to water-conveying conduits. The manifold includes a cover in the form of a plate overlying the openings. The plate is spaced from the surface of the countertop by a skirt extending downwardly from the periphery of the plate. Valve members, water-conveying conduits, and a spout assembly are connected to, and carried
10 by, the plate. All of the components of the manifold can be manufactured inexpensively, many of them in stamping operations. The invention eliminates the need to form parts in casting operations, thereby significantly reducing manufacturing costs.

Prior art U.S. Patent Application #20030093857, published 5/22/2003 by Paterson, puts an interchangeable gooseneck faucet, which comprises faucet spout
15 assembly providing multiple spouts with different heights and curvature, which are interchangeable within the same faucet. Laminar flow from the spout is achieved with a flow control device upstream of the spout outlet. A check valve is optionally used in the inlet to the spout to promote greater flexibility in placement of the flow control device within the assembly.

20 Prior art U.S. Patent #5,779,146, issued 7/14/1998 to Cutler, illustrates a decorative fluid discharging fixture that has a housing, a portion of which is generally translucent, a generally fluid-tight receiving chamber, and a selective and interchangeable

insert element which is inserted in the housing by the user so as to be visible from the outside of the housing. The construction of a faucet handle for receiving an insert element is also disclosed. The insert element may include any type of decorative material, such as rug clippings, wallpaper, fabric, or window dressing material, that are used in the surrounding room so that the decorative fluid discharging fixture can coordinate with the overall motif or decor of the room.

What is needed is a modular faucet fixture in which the spout, handles and base may be easily interchangeably replaced without affecting the connections to the existing plumbing fixtures and pipes, thereby permitting the decorative portion of the plumbing fixture, the base, spout and handles, to be installed and replaced as desired.

Summary of the Invention

An object of the present invention is to provide modular faucet fixtures in which a plumbing fixture mounting component is pre-attached to an existing water faucet supply plumbing fixture, the water pipes or valves, and any of a variety of interchangeable spouts, handles and bases may be easily interchangeably replaced without affecting the connections to the existing plumbing fixtures and pipes, thereby permitting the decorative portion of the plumbing fixture, the base, spout and handles, to be installed and replaced as desired by an unskilled person using only a screwdriver, without affecting the plumbing connections.

Another object of the present invention is to provide modular faucet fixtures that may be used by new or existing homeowners and construction companies during remodeling, which saves on the cost of the remodeling process.

One more object of the present invention is to provide modular faucet fixtures whose decorative portions, the base, spout and handles, can be interchangeably removed and replaced to match home décor.

In brief, modular faucet fixtures provide spouts, handles and bases which may be easily interchangeably replaced without affecting the connections to the existing plumbing fixtures and pipes, thereby permitting the decorative portion of the plumbing fixture, the base, spout and handles, to be installed and replaced as desired by an unskilled person using only a screwdriver, without affecting the plumbing connections.

Initially, at least one plumbing fixture mounting component is pre-attached to an existing water faucet supply plumbing fixture connected to the water pipes. Once the mounting component is in place, the decorative portions of the plumbing fixture, the base, spout and handles, may be interchangeably removed and replaced without affecting the plumbing connections.

A plumbing fixture mounting component is installed by threading the bottom of it to a threaded water pipe or valve connection to existing plumbing water pipes or flow control valve fixtures. Any of a variety of differently styled and shaped bases is slipped over the mounting component and snapped into place by means of a spring and groove or an O-ring and groove.

For modular faucet handles, the plumbing fixture mounting component is threaded to the existing water pipe flow control valve or to the water flow control pipe with the mounting component having a built-in control valve. Any of a variety of differently styled and shaped modular handles may then be attached easily and

interchangeably to the mounting component. A star-shaped protrusion from a modular handle is seated in a star-shaped recess in the top end of the mounting component. The handle would then be secured in place by a screw into the top of the mounting component, covered by a decorative top plug, all without interfering with the connection
5 to the existing water control plumbing fixture.

For modular faucet spouts, the plumbing fixture mounting component comprises a flexible hose with a bottom element threaded to the existing water pipes or standard existing plumbing fixture communicating with the existing water supply pipes. Any of a variety of styles and shapes of modular water spouts may then be slipped over the
10 flexible hose and snap fit to the bottom connecting element of the flexible hose mounting component. The base component is pushed downward, attaching with a snap fit in the bottom connecting element separately or the modular spout and base may be formed together in one unit. The hose is held in place at the threaded opening of the spout by a threaded ring. The same concept could be applied to showers as well as sinks or other
15 faucet fixtures.

Various embodiments are provided for greater decorative choices. Embodiments with rectangular or cone shaped bases and curved faucet spouts are provided for added variety. In an alternate embodiment, a combined faucet spout and two-handled fixture for a one-hole plumbing fixture is provided having a base with upwardly angled handle
20 platforms and an arched faucet spout. A further embodiment is provided with a combined faucet spout and two-handled fixture having a base plate with separate elevated mounting platforms for each faucet handle and the faucet spout.

An advantage of the present invention is that it is interchangeable.

Another advantage of the present invention is that it is simple to install without required plumbing tools and without interfering with connections to existing plumbing pipes and valve fixtures.

5 An additional advantage of the present invention is that it may be changed at any time.

One more advantage of the present invention is that it may be used to match home décor.

10 Yet another advantage of the present invention is that it provides an inexpensive way to remodel or customize a room.

Brief Description of the Drawings

These and other details of my invention will be described in connection with the accompanying drawings, which are furnished only by way of illustration and not in limitation of the invention, and in which drawings:

15 FIG. 1 is a side elevational view in partial section of a faucet handle fixture and base of the present invention applied to a water pipe and sink showing a snap-fit connection spring between the base mounting posts and grooves in the water pipe attachment component;

20 FIG. 1A is a side elevational view in partial section of a faucet handle fixture and base of the present invention applied to a water pipe and sink showing a snap-fit rubber O-ring in a groove in the water pipe attachment component connecting with grooves in mounting posts in the base;

FIG. 2 is a perspective view of the water pipe attachment component of the handle fixture of FIG. 1;

FIG. 2A is a perspective view of the water pipe attachment component of the handle fixture of FIG. 1A;

5 FIG. 3 is a top plan view of the base and water pipe attachment component of the handle fixture of FIG. 1 with the handle in perspective aligned for attachment to the water pipe attachment component;

FIG. 4 is a side elevational view of the faucet handle fixture of FIG. 1 showing the base and handle with the attaching screw and top plug aligned for attaching the
10 handle to the water pipe attachment component;

FIG. 5 is a side elevational view of an alternate embodiment of the faucet handle fixture showing the base and handle;

FIG. 6 is a side elevational partial perspective view of a faucet fixture and base attached to a water pipe on a sink countertop;

15 FIG. 7 is a side elevational view of a rectangular embodiment of the faucet fixture of FIG. 6;

FIG. 8 is a side elevational view of a cone shaped base and curved faucet spout embodiment of the faucet fixture of FIG. 6;

FIG. 9 is a side elevational view of a combined faucet spout and two handle
20 fixture having a base with upwardly angled handle platforms and an arched faucet spout;

FIG. 10 is a side elevational view of a combined faucet spout and two handle fixture having a base plate with separate elevated mounting platforms for each faucet handle and the faucet spout.

Best Mode for Carrying Out the Invention

5 In FIGS. 1-5, a modular faucet fixture device with interchangeable modular components comprising a plumbing fixture mounting component 31 and 31A, which is pre-attachable to an existing water faucet supply plumbing fixture pipe 60 by a standard threaded connector 61. The plumbing fixture mounting component 31 and 31A comprises a bottom end having a standard attaching means, such as the threaded connector 61 for
10 interconnecting to a standard water faucet supply plumbing fixture 60, which may be a water pipe or water flow control. The standard attaching means on the bottom of the plumbing fixture mounting component 31 and 31A comprises a standard threaded end 61 adapted for attaching to standard threaded ends of standard water faucet supply plumbing fixture 60 below a sink counter 50 with the top end of the plumbing fixture mounting
15 component 31 and 31A adapted to be accessed from above a sink counter 50.

The plumbing fixture mounting component 31 and 31A also comprises a top end adapted for receiving any of a variety of replaceable modular water faucet components 23, 23A, 23B, 23C, 24, 24A, 24B, 24C, 24D, 43, 43A, 43B, 43C, 44, 44A, 44B, 44C, 44D, and 48 removably attachable thereto independently of the connection to the
20 standard water faucet supply plumbing fixtures 60.

In FIGS. 1-5, the plumbing fixture mounting component 31 comprises a rigid shaft which may have an interior rotatable control valve communicating with a standard

water supply pipe 60 or an interior turning element for turning a standard rotatable water control valve in the existing water faucet supply fixture 60. Modular water faucet handle components 24, 24A, and 24B interchangeably connect to the plumbing fixture mounting component 31 by a screw 26 screwing into a top of the mounting component coupled
5 with a protrusion 25 from one, in this case the handle, fitting into a mating recess 35 in the other, in this case the mounting component, as shown in FIG. 3.

In FIGS. 6-10, the at least one plumbing fixture mounting component 31A comprises a rigid shaft attached to a standard water supply fixture 60, a pipe, by a standard threaded coupling 61 or pair of couplings, as shown in FIG. 6. A flexible hose
10 41 extends from the top of the rigid shaft, the flexible hose communicating with the existing water faucet supply fixture 60, the water pipe or pipes. The flexible hose 41 has a threaded connector 47 at a top end, and the at least one modular water faucet spout comprises any of a number of modular water faucet spout sleeves 44, 44A, 44B, 44C, and 44D adapted for fitting over the flexible hose 41 and the means for removably attaching
15 the at least one modular water faucet spout component to the at least one plumbing fixture mounting component comprises a mating threaded connector (inside the flexible hose threaded connector 47, on an outer end of the modular water faucet spout adapted for threadably connecting to the threaded connector of the flexible hose with the flexible hose communicating with a spout opening 49, independently of the connection 61 to the
20 existing plumbing fixtures 60.

In FIGS. 1, 1A, 2, 2A, and 6, any of a variety of modular bases 23, 23A, 23B, 23C, 23D, 43A, 43B, 43C and 43D are adapted for snap fitting on the plumbing fixture

mounting component 31 and 31A by a means for snap fitting the base to the plumbing fixture mounting component without independently of the connection 61 to the standard water faucet supply plumbing fixtures 60.

In FIGS. 1 and 2, the replaceable modular base 23 and the mounting component 31 each have mating grooves, side grooves or holes 18 on base posts 19 and side grooves 32 on the mounting component and the means for snap fitting the base 23 to the mounting component 31 comprises a spring element 22, which enables a removable snap fit therebetween.

In FIGS. 1A, 2A, and 6, the base 23 and 43A and the replaceable water faucet mounting component 31 each have mating grooves, side grooves 18 on base posts 19 and 19A and an annular groove 32A around the mounting component 31 and 31A and the means for snap fitting the base 23 and 43A to the replaceable water faucet component 31 comprises an O-ring element 17, which enables a removable snap fit therebetween. In FIG. 6 the base 43A is combined with the modular faucet spout 44.

In practice, a plumbing fixture mounting component 31 and 31A would be mounted to an existing water faucet supply fixture 60 by a standard threaded connection 61. Once the plumbing fixture mounting component 31 and 31A is in place any of a variety of styles and sizes of spouts 44, 44A, 44B, 44C or 44D, handles 24, 24A, 24B, 24C, and 24D and bases 23, 23A, 23B, 43A, 43B, 43C or 43D may be interchangeably removed and replaced from above the sink counter top 50 without affecting the connections to the existing water faucet supply fixtures. The same concept could be applied to showers.

It is understood that the preceding description is given merely by way of illustration and not in limitation of the invention and that various modifications may be made thereto without departing from the spirit of the invention as claimed.